

September 1, 2006

**MEMORANDUM**

**TO:** Mr. Steve Murray, P.L.S. - Tippecanoe County Surveyor

**FROM:** David W. Eichelberger, P.E. - CBBEL, Indianapolis

**PROJECT:** Stanfield Ridge Rural Estates Subdivision  
CBBEL Project No. 02-038 (FH)

**OWNERS:** Richard P. and Eloise G. Warren Revocable Trust

**DEVELOPER:** Aaron B. Cobb

**LOCATION:** 40° 26' 51" Latitude  
-87° 00' 59" Longitude

**RECOMMENDATION:** Final Approval with Conditions

Approximately 56.5 acres of land with a mixed cover of woods, row crops, and meadows will be converted to twenty-four (24) large, rural estate lots ranging in size from 1.26 acres to 3.6 acres. The proposed residential subdivision is located northwest of the intersection of County Road 600 West and State Road 26 in Shelby Township. Lot access will be from three (3) private roads - with no outlets - stemming from a single, main entrance at County Road 600 West. The main, semi-circular drive will terminate in a cul-de-sac. The existing property has significant vertical relief within the wooded areas, with generally flat to rolling topography in the farmed fields and meadows. The site drains easterly and southerly to Indian Creek and westerly to Goose Creek. Four (4) stormwater dry detention basins will be constructed within existing depressional areas or in valleys with engineered embankments. A diversion swale will be constructed to route stormwater from an off-site area north of the development around the proposed lots to Goose Creek. Existing drainage patterns will be minimally disrupted to allow stormwater to follow established natural watercourses. Stormwater will be intercepted by the dry detention facilities or discharged undetained within undisturbed areas to current points of discharge at the property line. All on-site and off-site areas draining to Indian Creek cross County Road 600 West or State Road 26 at existing culvert pipes. Areas draining to Goose Creek are discharged into the stream on the north side of State Road 26. Post-construction water quality requirements will be addressed through a treatment train combination of vegetated swales (one per lot), existing vegetated buffer strips, and/or extended dry detention facilities.

Based on information available to CBBEL, it does not appear that any Tippecanoe County Regulated Drain exists at or near the project site. Runoff from the site eventually discharges to the Wabash River via Indian Creek. The project site is within the Tippecanoe County MS4 Area.

This project was previously reviewed in a memorandum dated August 21, 2006. After a review of the most recently provided information, CBBEL recommends final approval of the stormwater management plan subject to the following conditions:

**Variances/Encroachments**

There are no variance requests or regulated drain encroachments proposed with this portion of the project.

### **Stormwater Quantity**

1. The width of the drainage easements within Lots 13 and 19 – 22 are incorrectly noted on the Final Plat, per the scale of 1 inch = 100 feet. The Final Plat should be revised. Drainage easements should still be indicated on the plans for all outlots with detention ponds.
2. The Master Utility Plan still needs to be revised to indicate a land area of 56.05, which is the area provided on both the Stormwater Drainage Technical Report and the Final Plat.
3. In lieu of proposed contours, the applicant should provide a detail (cross section) of the proposed stormwater conveyance swales and capacity calculations for each swale.
4. The emergency routing flow path for the Outlot E detention pond should still be shown on Sheet 8. The emergency overflow routing path should be offset from the detention pond outlet pipe and armored with riprap.
5. The maximum pool elevation for Pond A with off-site flow draining through the pond (625.2 feet) should be noted on Sheet 8 of the plans.
6. If CMP's are proposed for the Outlot B and E pond discharge pipes, CMP should be indicated on the plans.
7. Separate calculations indicating the Outlot A and Outlot D pond emergency spillways have been designed to handle 1.25 times the 100-year peak discharge from the respective contributing drainage areas still should be provided. The Outlot A spillway should take into account anticipated flow from off-site Basin O-1.
8. The applicant has provided photographic evidence of the condition of Goose Creek upstream and downstream of State Road 26. However, the condition of the existing ravine draining the subject property still should be documented in the stormwater report with photos and a descriptive narrative. The documentation should address the portion of the ravine upstream from its confluence with Goose Creek to the project discharge point (DP-7).

### **Stormwater Quality**

1. The pond stormwater elevations computed using the Type II, 1-inch rainfall over a 24-hour period appear to be less than ½ the water quality volume (WQv) elevations previously determined in the Stormwater Drainage Technical Report dated July 24, 2006. In order to meet the residence time requirement for dry ponds, the model should be checked to ensure the correct water quality curve number (CNwq) has been used. Additionally, it appears the diameter of the pond outlet pipes may be too large to achieve a water quality volume residence time of 24 to 48 hours for this storm event, with no more than 50 percent of the water quality volume released within 12 hours.
2. Erosion control blankets should be installed in the swale flow line within Outlot A.
3. Additional maintenance/inspection guidelines should be included in the BMP Operations and Maintenance (O&M) Manual to address potential erosion within the existing natural buffer strips due to concentrated flow exiting the vegetative swales. Measures should be provided to both reduce flow velocity at the downstream end of the vegetative swales during large storm events and provide an even distribution of flow across the receiving ground surface.

**General Conditions**

1. The applicant still should provide in the summary table for the project the amount of storage required to meet the allowable release rates at each outlet. This information is for record keeping purposes and is requested of all applicants.
2. The applicant must present the project at the Tippecanoe County Drainage Board meeting for the project to be considered for approval.
3. The applicant still should obtain approval from the Tippecanoe County Highway Department for all work proposed within future right-of-way areas and for all work within the County Road 600 East Right-of-Way.
4. The applicant must pay the Phase II stormwater program fees.
5. The applicant must pay any final drainage review fees per Ordinance 2005-04-CM and submit a letter to the County Surveyor's Office stating that these fees will be paid.
6. The applicant must provide proof to the Tippecanoe County Surveyor's Office (TCSO), of the formation of a Homeowners Association (HOA), which will assess sufficient funds for the inspection and maintenance of all drainage facilities. An estimate of the needed annual assessment for maintenance and inspection of the drainage facilities must also be provided to the TCSO. In addition, a yearly report must be submitted to the TCSO to show that the HOA is still active and to report the amount of assessments collected.
7. The applicant must provide recorded copies of restrictive covenants satisfactory to the Tippecanoe County Drainage Board and the Tippecanoe County Surveyor's Office.
8. All listed issues must be completely addressed before final plan approval and sign-off will be granted by the County Surveyor's Office.

No error or omission in the plans, calculations or applications (whether said plans, calculations or applications have been reviewed by the review engineer or not) shall permit or release the applicant and designer from constructing this work in any other manner than that provided for in the County Ordinance.

pc: C&S Engineering

DWE/KMD/jd

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